

On the Question of the Kinetic Mechanism of Interaction SOV/20-123-5-25/50  
Between Methane and Nitrogen Dioxide

This reaction also constitutes the decisive stage of the process as a whole. I. V. Patsevich confirmed these results by employing a different method. Thus the nitrification mechanism of methane can be interpreted as follows: A complicated introductory production of the alkyl radicals according to reaction (1) is followed by an interaction of these radicals with  $\text{NO}_2$ . It apparently occurs with a low energy of activation according to the reactions (a) and (b), as  $\text{NO}_2$  is a molecule similar to a radical. It can therefore be stated that the energy of activation 30 Kcal/Mol is the energy of activation of the introductory reaction. There are 4 figures, 1 table, and 17 references, 5 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute of the Academy of Sciences of the USSR)

SUBMITTED: July 18, 1958

Card 3/3

5(3), 5(4)

SOV/75-14-2-8/27

AUTHORS: Ballod, A. P., Molchanova, S. I., Patsevich, I. V.,  
Topchiyev, A. V., Shtern, V. Ya.

TITLE: Polarographic Analysis of the Liquid Products of Nitration  
of Alkanes With Nitrogen Dioxide (Polyarograficheskiy analiz  
zhidkikh produktov nitrovaniya alkanov dvuokis'yu azota)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 2, pp 188-197  
(USSR)

ABSTRACT: The gas-phase nitration of alkanes ( $C_1$  to  $C_3$ ) with nitrogen dioxide yields a complex mixture of products the quantitative analysis of which is very difficult. In the reaction mixture nitroparaffins, alkyl nitrites, alkyl nitrates, aldehydes, alcohols, alkanes, alkenes, carbon monoxide, carbon dioxide, nitric oxides, and water were found. The nitric oxides, carbon oxides, and hydrocarbons may be determined by the usual chemical or chromatographical methods. For this purpose the liquid reaction products (nitroparaffins, alkyl nitrites, alkyl nitrates, aldehydes, and alcohols) must be separated beforehand by dissolving them in water. In the present paper

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SOV/75-14-2-8/27

Polarographic Analysis of the Liquid Products of Nitration of Alkanes  
With Nitrogen Dioxide

a quantitative polarographical method of analyzing liquid nitration products in the absence and in the presence of  $\text{NO}_2$  is described. The method devised makes it possible to determine the sum of nitroparaffins, the sum of alkyl nitrites, and the determination of formaldehyde and of the sum of higher aldehydes in the absence and in the presence of  $\text{NO}_2$ . The determination of formaldehyde in a 0.2 molar solution of LiOH is possible if the concentration of  $\text{NO}_3^-$  is below 0.01 - 0.05 mol/l. If alkyl nitrites and alkyl nitrates are simultaneously present, only the total sum of these compounds can be determined. The authors obtained for the first time a polarogram of methyl nitrolic acid. In a 0.2 molar solution of LiOH the polarogram of the methyl nitrolic acid consists of two waves with half-wave potentials  $\pi_{1/2} = -0.6$  v and  $\pi_{1/2} = -1.1$  v with reference to a saturated calomel electrode. In a buffer solution of 0.2 molar NaOH

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SOV/75-14-2-8/27  
Polarographic Analysis of the Liquid Products of Nitration of Alkanes

With Nitrogen Dioxide

and 0.2 molar  $\text{NaH}_2\text{PO}_4$  (pH 5-7) only one wave is observed ( $\pi_{1/2} = -0.25$  to  $-0.3$  v). The polarographic methods of analysis devised are described in detail, and the polarograms are reproduced. The following tables are contained in the paper: 1) half-wave potentials of  $\text{RNO}_2$ ,  $\text{RONO}$ ,  $\text{RONO}_2$   $\text{HCHO}$  and  $\text{CH}_3\text{CHO}$  with reference to a saturated calomel electrode (for an acid, neutral, and alkaline medium); 2) change of the height of the reduction wave of formaldehyde with respect to time in the following solution: 0.006 molar at  $\text{HCHO}$ , 0.002 molar at  $\text{CH}_3\text{NO}_2$  and 0.13 molar at  $\text{LiOH}$ ; 3) results of the polarographical analysis of artificial mixtures of  $\text{CH}_3\text{CHO}$ ,  $\text{HCHO}$ ,  $\text{C}_2\text{H}_5\text{ONO}$  and  $\text{CH}_3\text{NO}_2$  in the absence of  $\text{NO}_2$ ; 4) influence exercised by time beginning with the preparation of the mixture on the height of the waves; 5) results of the analysis of artificial mixtures in the

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Polarographic Analysis of the Liquid Products of Nitration of Alkanes  
With Nitrogen Dioxide

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presence of  $\text{NO}_2$ . There are 7 figures, 5 tables, and 9  
references, 4 of which are Soviet.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR, Moskva  
(Institute of Petroleum-chemical Syntheses of the AS USSR,  
Moscow)

SUBMITTED: July 25, 1958

Card 4/4

PHASE I BOOK EXPLOITATION

SOV/4679

Shtern, Vladimir Yakovlevich

Mekhanizm okisleniya uglevodorodov v gazovoy faze (Oxidation Mechanism of Hydrocarbons in the Gaseous Phase) Moscow, Izd-vo AN SSSR, 1960. 493 p. Errata slip inserted. 3,800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut neftekhimicheskogo sinteza. Resp. Ed.: A. V. Topchiyev, Academician; Ed. of Publishing House: V. V. Yastrebov; Tech. Ed.: V. V. Bruzgul'.

PURPOSE: This book is intended for chemists, aspirants, and advanced students in universities and institutes of chemistry and technology.

COVERAGE: This is a critical review of experimental data on the general kinetics and chemism of oxidation processes studied by Soviet and other scientists in the last 60 years. The data are used for ascertaining the mechanism of oxidation of various hydrocarbons (paraffinic, olefinic, naphthenic, and aromatic) in the gas phase. The last chapter deals with the possibility of increasing the initial amount of hydrocarbon in the oxidation without effecting a change

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40914  
S/204/62/002/001/007/007  
I032/I232

11.1260

AUTHORS: Topchiyev, A. V., Fedorova, T. V., Ballod, A. P., Shtern, V. Ya.

TITLE: The mechanism of interaction of alkanes with nitrogen dioxide in the vapor phase.  
1. Kinetics and mechanism of the reaction of  $\text{CH}_4$  with  $\text{NO}_2$

PERIODICAL: Neftekhimiya, v. 2, no. 1, 1962, 71-90

TEXT: The reaction between  $\text{CH}_4$  and  $\text{NO}_2$  in the vapor phase was studied under initial pressure ranging between 10 and 600 mm Hg in the temperature range between 400° and 600°C on mixtures of compositions  $2\text{CH}_4 + \text{NO}_2$  and  $4\text{CH}_4 + \text{NO}_2$ . The kinetics of the reaction were determined by the initial conditions of pressure and temperature. Accordingly, three types of reaction were observed: 1) A slow reaction. 2) A "cold flame" reaction. 3) An explosive reaction. The composition of the end products varied according to the course of the reaction. The slow reaction of  $\text{CH}_4$  with  $\text{NO}_2$  was established to be a first order reaction with an activation energy of  $33.5 \pm 1.3$  K cal/mole. The effects of the addition of nitrogen to the reaction mixture, of the variation of the surface to volume ratio of the reaction vessel, of the nature of the reaction vessel surface on the reaction velocity were studied. The addition of nitrogen oxide to the reaction mixture slowed down the initial velocity of  $\text{NO}_2$  consumption, while the addition of oxygen in no way affected either the reaction kinetics or the composition of the end products. The effect of addition of  $\text{CH}_3\text{ONO}$  and

Card 1/2

TOPCHIYEV, A.V.; BALLOD, A.P.; FEDOROVA, T.V.; SHTERN, V.Ya.

Mechanism of the vapor-phase interaction of alkanes with nitrogen dioxide. Part 2: Radical-chain flowsheet of the reaction of  $\text{CH}_4$  with  $\text{NO}_2$ . Neftekhimiia 2 no. 2:211-228 Mr.-Ap '62. (MIRA 15:6)  
(Paraffins) (Nitrogen oxides)

TOPCHIYEV, A.V.; FEDOROV, T.V.; BALLOD, A.P.; SHTERN, V.Ya.

Mechanism of the vapor phase interaction of alkanes with nitrogen dioxide. Part 1: Kinetics and mechanism of the reaction of  $\text{CH}_4$  with  $\text{NO}_2$ . Neftekhimia 2 no.1:71-90 Ja-F '62. (MIRA 15:5)

1. Institut neftekhimicheskogo sinteza AN SSSR.  
(Methane) (Nitrogen oxides)

S/204/62/002/002/006/007  
I060/I242

AUTHORS: Topchiyev, A.V., Ballod, A.P., Fedorova, T.V., and  
Shtern, V.Ya.

TITLE: Mechanism of vapor-phase interaction of alkanes with  
nitrogen dioxide. 2. Radical-chain reaction mechanism  
of  $\text{CH}_4$  with  $\text{NO}_2$

PERIODICAL: Neftkhimiya, v.2, no.2, 1962, 211-228

TEXT: This article is a continuation of a paper published by  
the same authors in the Neftkhimiya, v.2, no.1, 1962, 71. A low  
probability exists for the reaction between methane and  $\text{NO}_2$  by a mole-  
cular mechanism. A radical-chain process is described for the reaction  
of methane with  $\text{NO}_2$ . It is a branched chain reaction with relatively  
weak chains and a high termination rate. Thus, when the termination

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S/020/62/147/006/027/034  
B144/B101

AUTHORS: Topchiyev, A. V., Academician, Litmanovich, A. D.,  
Shtern, V. Ya.

TITLE: Fractionation of copolymers. Effect of the composition  
on phase interactions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 6, 1962,  
1389-1391

TEXT: This is a theoretical study of the fractionation, through  
temperature reduction, of a polydisperse, inhomogeneous, and linear  
copolymer dissolved in an individual solvent. On the basis of Flory's  
theory of polymer fractionation the following change in free energy is  
obtained when dissolving this copolymer:  $\Delta F_m = RT(n_1 \ln v_1 +$   
 $\sum_{r,\alpha} n_{r,\alpha} \ln v_{r,\alpha} + n_1 \sum_{r,\alpha} v_{r,\alpha} \chi_{\alpha})$ , where  $n_1$  and  $v_1$  are the number of  
molecules, and the part by volume of the solvent, respectively,  $n_{r,\alpha}$  and

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S/020/62/147/006/027/034

B144/B101

Fractionation of copolymers. ...

$v_{r,\alpha}'$  are parameters equal for the component with the polymerization degree  $r$  and the composition  $\alpha$ ,  $\alpha$  is the portion of A members in the copolymer AB, and  $\chi_\alpha$  is the parameter of interaction between solvent and the macromolecules of the composition  $\alpha$ .  $\ln(v_{r,\alpha}'/v_{r,\alpha}) = r[\bar{\sigma} + (v_2' - v_2)\chi_\alpha]$ ,

where  $v_{r,\alpha}'$  and  $v_{r,\alpha}$  are the parts by volume of the component  $[r,\alpha]$  in the deposit and in the solution, respectively, is obtained on the assumption that the solution separates into two phases (deposit and dilute solution) on temperature reduction. The distribution of this component depends, therefore, not only on the chain length but also on the composition.

$\ln \varphi_{r,\alpha} = r(\sigma + K\alpha)$  was obtained from  $\chi_\alpha = \chi_A \alpha + \chi_B (1 - \alpha)$ ;  $\varphi_{r,\alpha} =$

$v_{r,\alpha}'/v_{r,\alpha}$ ;  $\sigma = \bar{\sigma} + \chi_B (v_2' - v_2)$ ; and  $K = (\chi_A - \chi_B)(v_2' - v_2)$ , where  $\chi_A$  and  $\chi_B$  are the parameters of interaction between solvent and A and B respectively, and  $v_2'$ ,  $v_2$  are the total polymer contents in the deposit

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Fractionation of copolymers. ...

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B144/B101

and solution respectively. This equation shows that the distribution of components depends on their composition at equal chain lengths. An increase in molecular weight increases this effect. The portions of the component  $[r, \alpha]$  in the solution and in the deposit after phase separation, are obtained from  $f_{r, \alpha} = 1/[1 + R \exp r(\sigma + K_\alpha)]$  and  $f'_{r, \alpha} = 1/[1 + (1/R) \exp - r(\sigma + K_\alpha)]$ , where  $R = V'/V$ , with  $V'$  and  $V$  being the volumes of concentrated and dilute phases in equilibrium.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR  
(Institute of Petrochemical Synthesis of the Academy of Sciences USSR)

SUBMITTED: October 15, 1962

Card 3/3

LITMANOVICH, A.D.; SHTERN, V.Ya.; TOPCHIYEV, A.V. [deceased]

Precipitation of copolymers of methyl methacrylate with styrene.  
Neftekhimiia 3 no.2:217-221 Mr-Ap '63. (MIRA 16:5)

1. Institut neftekhimicheskogo sinteza AN SSSR imeni A.V.Topchiyeva.  
(Methacrylic acid) (Styrene) (Polymers)

L 13512-63

Pc-4 RM/BW/WW/MN

EPF(c)/EPR/EWP(j)/EWT(m)/BDS AFFTC/APOC/ASD Pr-4/Ps-4

ACCESSION NR: AP3002774

S/0204/63/003/003/0343/0347

AUTHOR: Kudryavtseva, L. G.; Litmanovich, A. D.; Topchiyev, A. V.; Shtern, V. Ya.

TITLE: The fractionation of the methylmetacrylate copolymer with styrole

SOURCE: Neftekhimiya, v. 3, no. 3, 1963, 343-347

TOPIC TAGS: copolymer, fractionation methylmetacrylate, styrole, n-hexane, methanol, toluol, acetonitrile-toluol, n-hexane, styrole

ABSTRACT: The fractionation of methylmetacrylate copolymer with styrole in the two system solvent-precipitator which are essentially different in sensitivity to the composition of copolymer has been investigated. The two systems selected for the fractionation of copolymer of the composition Alpha = 0.23 where Alpha = molar composition of styrole links in the copolymer, were Eta-hexane plus methanol in the ratio 0.8 : 1 in toluol, and acetonitrile - toluol. The values of differential functions  $w(\text{Eta})$  and integral function  $I(\text{Eta})$  (where Eta is the characteristic viscosity) of the weight distribution of the original sample according to  $(\text{Eta})$  are calculated from the fractionation data. The values  $w(\text{Eta})$  and  $I(\text{Eta})$  essentially depend on the character of

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L 13512-63

ACCESSION NR: AP3002774

the solvent - precipitator system. In the system Eta - hexane plus methanol - toluol, a assymmetric curve  $w(\text{Eta})$  was obtained corresponding to the expected molecular weight distribution of the initial copolymer. The system acetone - toluol has a bimodal curve  $w(\text{Eta})$ . These results agree with the theoretical calculations unimodal. Orig. art. has: 2 tables and 3 graphs.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR im. A. V. Topchiyeva  
(Institute of Petrochemical Synthesis AN SSSR)

SUBMITTED: 25Jan63 DATE ACQ: 23Jul63 ENCL: 00  
SUB CODE: CH NO REF SOV: 002 OTHER: 012

Card 2/2

LITMANOVICH, A.D.; SHTERN, V.Ya.

Molecular-weight distributions of the fractions of a copolymer of methyl methacrylate with styrene. Dokl. AN SSSR 154 no.6:1429-1431 F '64.  
(MIRA 17:2)

1. Institut neftkhimicheskogo sinteza im. A.V.Topchiyeva AN SSSR. Pred-  
stavлено академиком N.N.Semenovym.

TOPCHIYEV, Aleksandr Vasil'yevich, akademik [1907-1962]; KARGIN,  
V.A., akademik, otv. red.; SHTERN, V.Ya., doktor khim.  
nauk, otv. red.; SEMENOV, N.N., akademik, red.;  
ZHAVORONKOV, N.M., akademik, red.; NAMETKIN, N.S., red.;  
SHUYKIN, N.I., red.; LIKHTENSTEYN, Ye.S., kand. filolog.  
nauk, red.; KUZNETSOV, V.I., red.

[Selected works; nitration] Izbrannye trudy; nitrovanie.  
Moskva, Nauka, 1965. 427 p. (MIRA 18:7)

1. Chlen-korrespondent AN SSSR (for Nametkin, Shuykin).

TOPCHIYEV, Aleksandr Vasil'yevich, akademik[deceased]; KARGIN,  
V.A., akademik, svv. red.; SHTERN, V.Ya., doktor khim.  
nauk, svv. red.; SFMENOV, N.N., akademik, red.;  
ZHAVORONKOV, N.M., akademik, red.; NAMETKIN, N.S., red.;  
SHUYKIN, N.I., red.; LIKHTENSTEYN, Ye.S., kand. filol.  
nauk, red.; KUZNETSOV, V.I., red.

[Selected works] Izbrannye trudy. Moskva, Nauka. [Book 1]  
1965. 427 p. (MIRA 18:8)

1. Chlen-korrespondent AN SSSR (for Nametkin, Shuykin).

LITMANOVICH, A.D.; SHTERN, V.Ya.

Study of the polydispersity of copolymers by the fractionation method. Vysokom. soed. 7 no.8:1332-1334 Ag '65. (MIRA 18:9)

1. Institut neftekhimicheskogo sinteza AN SSSR.

GOL'DIN, S.A.; BALLOD, A.P.; SHTERN, V.Ya.

Spectroscopic study of the cold-flame glow appearing during  
propane nitration by nitrogen dioxide. Dokl. AN SSSR 164  
no.2:371-373 S '65. (MIRA 18:9)

1. Institut neftekhimicheskogo sinteza im. A.V. Topchiyeva  
AN SSSR. Submitted February 22, 1965.

CHITIN, Ya., Prof.

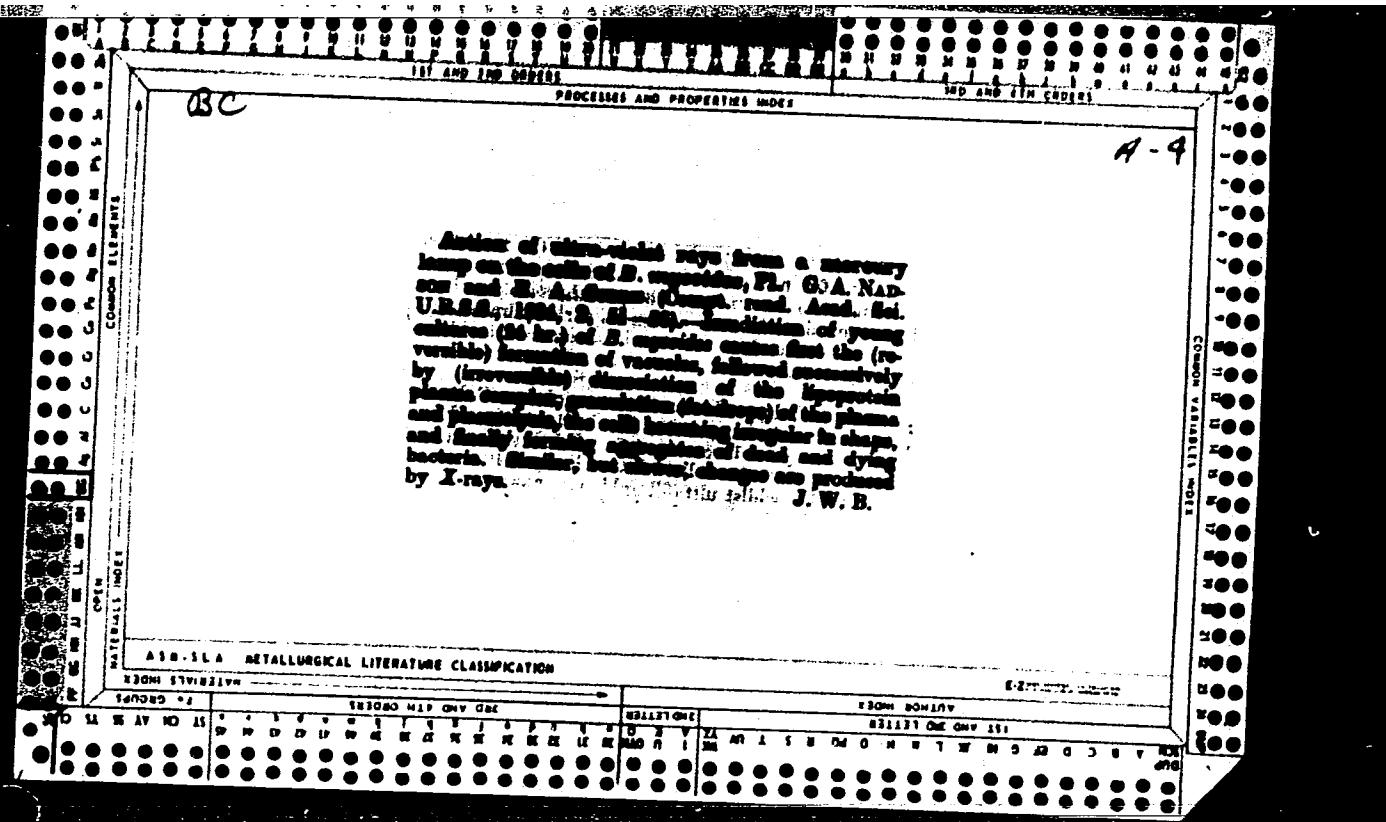
Pneumonia

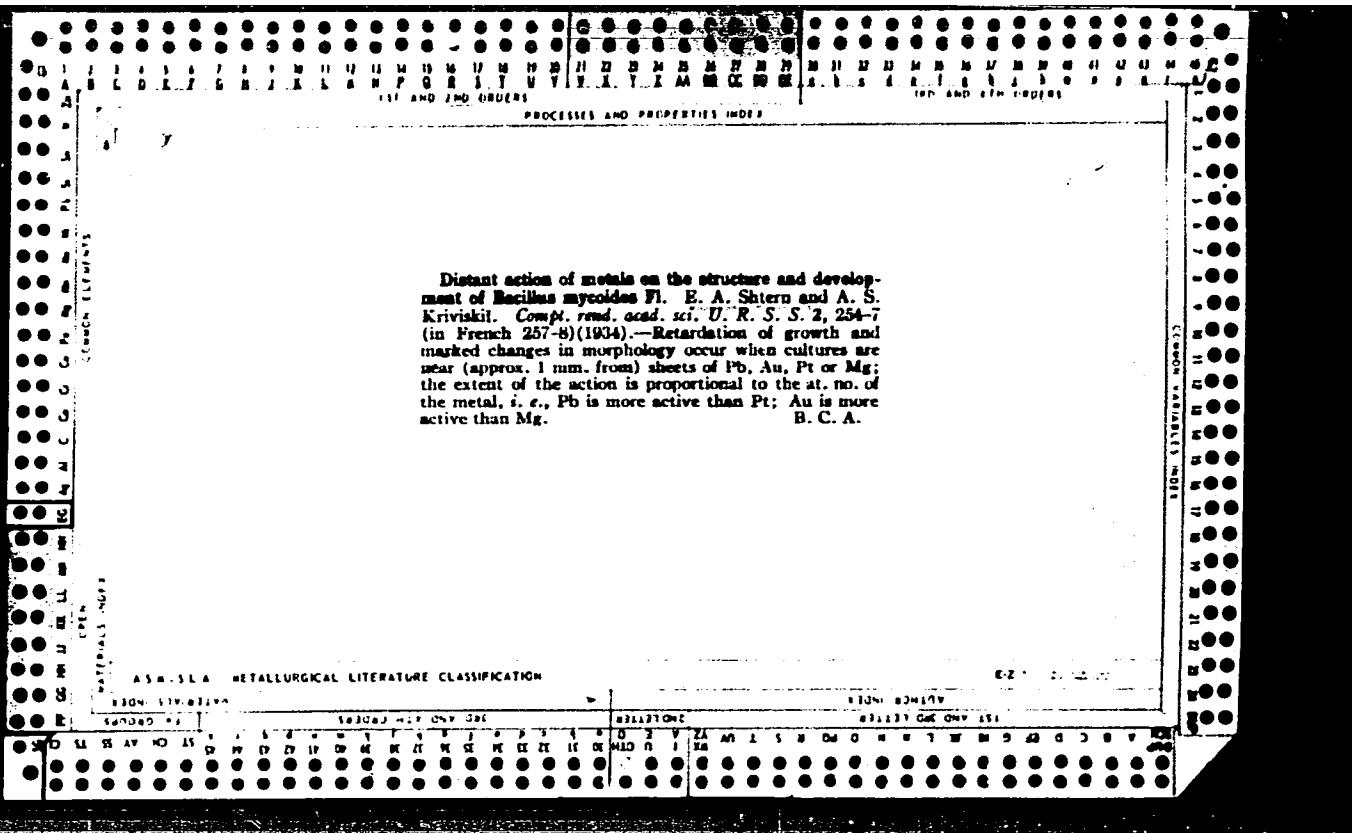
Pneumonia in infants during first days and weeks of life. Fel'd. i akush. No. 1, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

SHTERN, YA. V.

"Slow Oxidation of Hydrocarbons. Part II - Oxidation of Propane" from the book  
Chain Reaction on the Oxidation of Hydrocarbons in a Gaseous Phase, publ. by  
Inst. of Chem. Physics, AS USSR, 1955, p. 37.



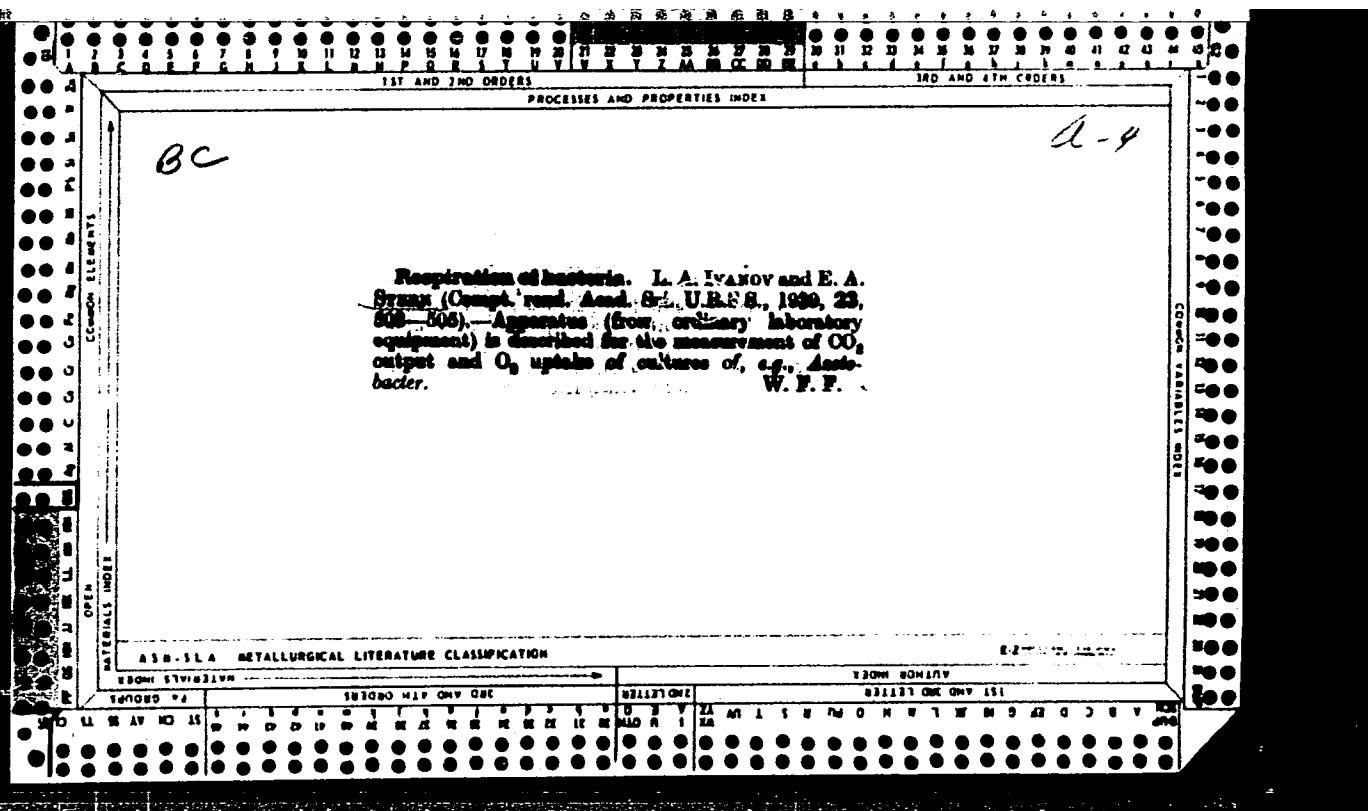


PROBLEMS AND PROPERTIES IN THE  
PRODUCTION OF BACTERIAL FERTILIZERS

The use of radio races of the *Azotobacter* in the production of bacterial fertilizers. E. A. Shtern. *Zhurn. vsekh  
spets. radiofiz.* (U. S. S. R.) 21, No. 1, 22-26 (1958). N  
fixation by the radio races of *Azotobacter chroococcum* 1  
was investigated in Elizavetino and Minsk peat, which  
contained N 30.41 and 26.91 mg./g. of dry material;  
P 0.2 and 0.02%, resp. Exptly. obtained radio races  
retain their morphological and cultural properties in pure  
cultures and in nonsterile peat. An increased capacity for  
the N fixation (as compared with that of the initial race)  
is retained by the "radio-salants" after they have been  
passed through these peats. The development of various  
microbes growing on meat-peptone agar is suppressed by  
the "radio-salants" and by the initial culture of the *Azotobacter*.  
The radio races are suitable for the production  
of fertilizers of high quality. The max. fixation of N in  
the case of the Elizavetino and Minsk (except with the G  
race) peats was observed on the 2nd day of the expts.  
(max. of the colonies) and the min. on the 15th day (min.  
colonies). In the case of the G race the least fixation of  
N was observed on the 2nd day (min. colonies) and the  
max. on the 8th day (max. colonies). About 45 refer-  
ences.  
A. A. Podgorny

ASR-SEA METALLURGICAL LITERATURE CLASSIFICATION

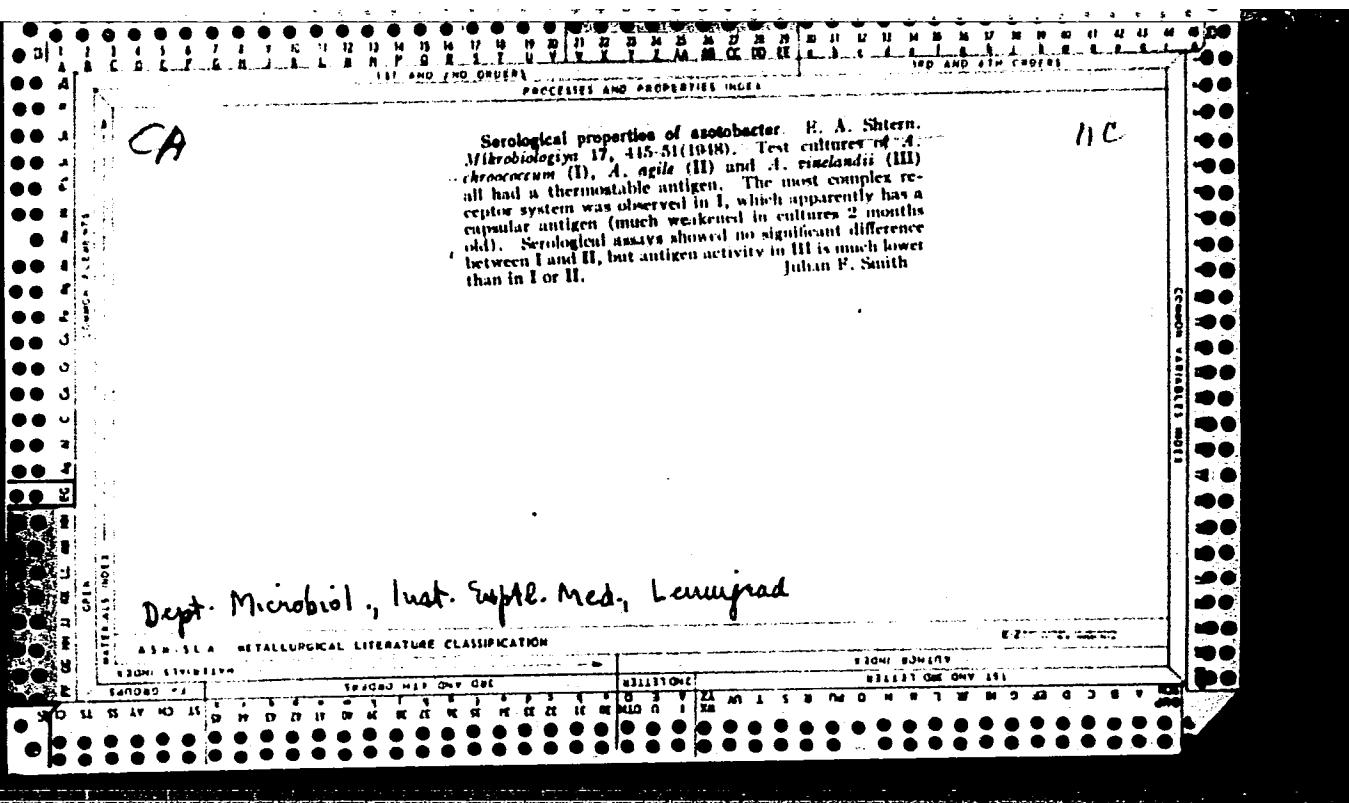
CLASSIFICATION	1	2	3	4	5	6	7	8
GENERAL SUBJECT	1	2	3	4	5	6	7	8
EXTRA SUBJECT	1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
38	39	40	41	42	43	44	45	46
48	49	50	51	52	53	54	55	56
58	59	60	61	62	63	64	65	66
68	69	70	71	72	73	74	75	76
78	79	80	81	82	83	84	85	86
88	89	90	91	92	93	94	95	96
98	99	100						



SHTERN, Ye. A.

"Methodics of Breathing Determinations in Microbes," Dokl. AN SSSR, 23, No.5, 1939

Lab. Botany and Microbiology, Leningrad State Roentgeno-Radiological and Oncological Inst.



SHTERN, E.A.

Serological properties of nodule bacteria. I. E. A. Shtern (Inst. Exptl. Med., Acad. Med. Sci. U.S.S.R., Leningrad). *Mikrobiologiya* 22: 423-30 (1953). — Nodule bacteria from alfalfa, clover, sweet clover, and vetch roots differ from those of horse bean, bean, and pea roots as to thermostable-thermostable complexes, but both groups generally have thermostable antigens. Some of their agglutinins have been characterized in serums from rabbits immunized with living bacteria. Julian F. Smith

SHTERN, Ye.A

Serological properties of nodule bacteria. II. Mikrobiologija 32 no.6:  
656-662 N-D '53. (MLR 6:12)

1. Institut eksperimental'noy meditsiny Akademii meditsinskikh nauk SSSR,  
Leningrad.

(Microorganisms, Nitrogen-fixing)

SHTERN, Ye.A.

Study of filtrable forms of hemolytic streptococcus. Mikrobiologija  
23 no.2:147-152 Mr-Ap '54. (MLRA 7:4)

1. Institut eksperimental'noy meditsiny Akademii meditsinskikh nauk  
SSSR, Leningrad. (Streptococcus)

Shtern, E. A.

Some characteristics of respiration, protein synthesis and phosphorus fixation in hemolytic streptococcal strains regenerated from broth culture filtrates. G. B. Savel'vol', A. P. Konikov, and E. A. Shtern (Inst. Exptl. Med., Acad. Med. Sci. U.S.S.R., Leningrad). *Microbiologiya* 24, 400-7 (1955).—Three strains of streptococci from osteomyelitis patients yielded 18 filterable variants from broth cultures. These were tested for pH, N assimilation, O consumed, and fixation of  $P_2O_5$ ; the chief differences were related to the fact that 10 of the variants were nonhemolytic although the 3 parent strains were hemolytic. The nonhemolytic forms intensified respiration (values for O consumed were 2-4 times greater than in hemolytic forms), yet were much less active than the hemolytic forms in protein synthesis and P fixation. The high rates of O consumption led to alkalization (pH 4.96-8.5 in hemolytic, 6.3-8.2 in nonhemolytic forms). The deficit or complete absence of protein synthesis did not prevent cell division in the cultures. The loss in synthetic activity, in spite of intensified respiration, signifies slower cell growth, lowered proliferation rate, and a loss in production of specific proteins, e.g. antigens and hemolysins, in the nonhemolytic forms.

Julian F. Smith

MD

①

TVERDYNIN, M.S.; SHTERN, Ye.A.

Leiomyosarcoma of the kidneys. Urologiia 25 no. 4:55-56 J1-Ag '60.  
(MIRA 14:1)  
(KIDNEYS--TUMORS)

*SACERDOTH, E. A.*

Causes for high dielectric losses in fresh transformer oil.  
R. A. Lipshtein and R. N. Shtern, *Khim. i Tekhnol. Topina* 1950, No. 7. ~~8~~ The dielectric loss of fresh transformer oil depends on the presence of trace amounts of metallic-org. compds. and on cleanliness of the condenser. Use of soft water, or better distd. water for washing during the refining operation and good settling of the acid treated oil, improves the dielec. properties of the oil. M. C.

LIPSSTEYN, R.A.; SHTERN, Ye.N.

Water solubility in insulating oils. Khim.i tekhn.topl. no.11:  
46-54 N '56. (MLRA 9:11)

1.Vsesoyuzny nauchno-issledovatel'skiy institut neftyanoy pro-  
myslennosti.  
(Water) (Insulating oils)

AUTHORS: Lipshteyn, R. A. and Shtern, Ye. N. SOV/65-58-9-6/16

TITLE: Influence of Humidity on the Dielectric Losses in Liquid Dielectrics (Vliyaniye vlagi na dielektricheskiye poteri v zhidkikh dielektrikakh)

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 9,  
pp 29-34 (USSR)

ABSTRACT: The electric strength and the loss factor of liquid dielectrics is influenced to a considerable extent by humidity. Many published results of previous investigations are only of a qualitative character. In this paper results are given of investigations of the influence of the concentration and the state of the water on the loss factor of transformer oil with and without the presence of polar substances. The problem of solubility of humidity in oils and the relations governing this phenomenon were dealt with in an earlier paper of the authors (Ref 4). The loss factor of the oil was determined by means of a bridge using a 50 c.p.s. current supply and a field strength of 1 kV/mm under conditions specified by standard specifications using plane electrodes (with quartz plates) which were placed into a hermetically

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SOV/65-58-9-6/16

Influence of Humidity on the Dielectric Losses in Liquid Dielectrics

sealed metallic housing. The desired air humidity inside that housing was ensured by means of an aqueous solution of NaOH of a definite concentration. The housing was placed into an air thermostat maintaining the necessary temperature, which was measured in the oil by means of a thermocouple. All the leads were inside quartz tubes. The oil samples were prepared by filtering under vacuum through a Nr 4 glass Shott filter and placing them in a desiccator for two days at room temperature. Thus, the humidity content of the air was 0.000% and its electric strength was above 240 kV/cm. The sample was kept in the housing at zero or high air humidity for 20 hours at room temperature and for a further 5 hours at a higher temperature. After determining the loss factor, the electrode was quickly removed and the water content of the oil determined by the calcium hydride method. The results are entered in Table 1. Within the limits of experimental error, even large amounts of dissolved water did not bring about an increase in the dielectric losses of the oil at elevated temperatures; at 70°C the  $\tan \delta$  of the water-free samples

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SOV/65-58-9-6/16

Influence of Humidity on the Dielectric Losses in Liquid Dielectrics

and samples containing about 0.04% of water equalled respectively 1.40 and 1.41%. In oil which was preliminarily dried no change was observed in the  $\text{tg } \delta$  value after exposure to air of a high relative humidity (up to 90%), since the water absorbed from the air forms with the oil a true solution, Figs. 1 and 2. It was found that the equilibrium of water in the oil at a given temperature depends on the corresponding air humidity. The authors found that the dielectric losses in the oil caused by the presence of water do not depend on the water content but on its condition. Water forming a true solution does not affect substantially the loss factor but if it is not dissolved in the oil it causes a sharp increase in the dielectric losses. For a given oil at a given temperature and air humidity, the loss factor increases sharply above a certain limit concentration of the water. The dielectric losses in the oil can be explained by cataphoretic conductivity rather than by ionic conductivity. Additional experiments were carried out to confirm this hypothesis; the desiccated oil was placed for two days into a hermetically sealed container inside which the air humidity equalled 90%.

Card 3/4

SOV/65-68-9-6/16

## Influence of Humidity on the Dielectric Losses in Liquid Dielectrics

During this time the value of the loss factor did not change. After unsealing this container, the air humidity dropped rapidly from 90 to 40% and there was a slight increase in the value of  $\tg \delta$ . The measured values of  $\tg \delta$  as a function of the content of humidity for oils and polar substances as a function of the water content are entered in Table 2; in oils containing such polar substances as acetic acid, butyric acid, lead and barium naphthenates,  $\tg \delta$  changes only very slightly except for oils containing 0.5% sodium naphthenate for which it increases from 0.64 to 7.00% after 4 days. According to earlier work (Ref 4) some polar substances impart the property of self-emulsification to the oil. The authors conclude that with polar substances present, the water can bring about an increase in the  $\tg \delta$  value only if it is not dissolved in oil, i.e. in the case of "self-emulsification". There are 2 tables, 2 figures and 4 Soviet references.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy in-t (All-Union Power Engineering Institute)

Card 4/4

1. Liquids--Dielectric properties 2. Dielectric properties--Moisture factors

LIPSHTEYN, R.A., SHTERN, Ye.N.

Causes of dielectric losses in transformer oil at a frequency of  
50 cps. Inzh.-fiz.zhur. no.2:101-104 p '60. (MIRA 13:7)

1. Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy  
institut im. F.E. Dzerzhinskogo, Moskva.  
(Insulating oils) (Dielectrics)

LIPSHTEYN, R.A., kand.tekhn.nauk; SHTERN, Ye.N., inzh.

Gas-proof features of transformer oils in an electric field.  
Vest. elektroprom. 34 no.2:40-45 F '63. (MIRA 16:2)  
(Electric fields) (Insulating oils)

LIPSHTEYN, R.A., kand.tekhn.nauk; SHTERN, Ye.N., kand.tekhn.nauk

Methods for determining the tendency of oils to increase the tangent  
of the dielectric losses during its aging. Elektrotehnika 34 no.12:  
(MIRA 17:1)  
19-22 D '63.

LIPSHTEYN, R.A.; MIKHEL'SON, A. Ya. & SHTERN, Ye. N.

Classification of antioxidant additives to lubricants based  
on the nature of their action. Khim. i tekhn. topl. i masel  
9 no. 6:48-52 Je '64 (MIRA 1787)

1. Vsesoyuznyy ordena Trudovogo Krasnogo Znameni teplotekhnicheskiy institut imeni Dzerzhinskogo.

LIPSETTIN, R.A., kand. tekhn.nauk; SHTERN, Ye.N., kand. tekhn.nauk

Development of breakdown locations in liquid dielectrics with  
engineering applications. Elektrotehnika 35 no.3:15-18 Mr  
'64. (MIRA 17:5)

LIPSHTEYN, R.A., kand. tekhn. nauk; SHTERN, Ye.N., kand. tekhn. nauk

Dependance of gas resistant oil on the group structure composition and physical and chemical indices. Elektrotehnika 35 (MIRA 17:8) no.6:62-64 Je '64.

PA 38/49T54

SHTERN, YE. P.

USER/Engineering  
Turbine  
Bearing

Jan 49

"Operation Tests of Guide Bearings For Hydro-  
turbines Made of Wood Plastics," Ye. P.  
Shtern, Engr, 3 pp

"Gidrotekh Stroy" No 1

38/49T54

USER/Engineering (Contd)

Jan 49

Three-year exploitation of turbine bearings  
made of "Lignofol" using water lubrication  
has proved that they can be used in hydro-  
turbines. Lignofol is produced from plywood  
sheets, treated with phenolformaldehyde tar,  
and compressed under high pressure.

38/49T54

SHTEBN, Ye.P., inzhener.

Experience in adjusting the work of hydro power units by compensating operation. Gidr.stroi. 23 no.7:26-29 '54. (MLR 7:11)  
(Hydroelectric power stations)

KIRPICHENKO, M.Ye.; MIKHAYEV, V.P.; SHTERN, Ye.P.

Fight against dreissena polymorpha pallas in hydroelectric power  
stations. Elek. sta. 33 no.5:30-31 My '62. (MIRA 15:7)  
(Hydroelectric Power Stations—Water supply)  
(Lamellibranchiata)

SHTERN, Ye.P., inzh.

Increase in the efficiency in the use of the equipment of a  
hydroelectric power station. Elek. sta. 33 no.8:33-37 Ag  
'62. (MIRA 15:8)  
(Volga Hydroelectric Power Station (Lenin))

SHTERN, Ye.P., inzh.

Experience in the operation of the turbine equipment in the  
V.I. Lenin Volga Hydroelectric Power Station. Energomashinostroenie  
9 no.10:24-27 0 '63. (MIRA 16:10)

(N) L 8330-66 EWT(m)/EWP(j)/EWP(b)/<sup>44,5</sup>EWP(t) RM, MW, MB, 12  
ACC NR: AP5025766 SOURCE CODE: UR/0286/65/000/018/0154/0154

AUTHORS: Trifel', M. S.; Khandarova, A. G.; Mekhmandarova, S. A.; Shtern, Ye. P. 44,5 44,5 44,5

ORG: none

TITLE: Method for protecting parts of hydromachinery, for example, blades of ship propellers or hydroturbine wheels, from corrosion-cavitation damage. Class 48, No. 164181

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 154 15, 44,5

TOPIC TAGS: hydromachinery, corrosion protection, cavitation damage, corrosion damage, MARINE EQUIPMENT, MARINE ENGINEERING

ABSTRACT: This Author Certificate presents a method for protecting parts of hydromachinery, e.g., blades of ship propellers or hydroturbine wheels, from corrosion-cavitation damage by protective painting or cathodic polarization. To increase corrosion-cavitation resistance, protection is provided by simultaneous use of cathodic polarization from a constant voltage source and by protective painting of steel parts with zinc paint, for example.

SUB CODE: 13/ SUBM DATE: 02Nov63

UDC: 620.197.5/.6

TER-GAZARYAN, G.N., doktor tekhn. nauk; SHIBRN, Ye.P., inzh.

Operation of a large hydrogenerator in partial phase mode.  
Elec. sta. 36 no.12:37-39 D '65. (MIA 18:12)

SHTERN, Yu. V., inzhener.

Work practice of the Krasnoye Selo Land Improvement Machinery Station.  
Gidr. i mel. 8 no.11:15-24 N '56, (MIRA 10:4)  
(Leningrad Province--Reclamation of land)

SEVERNASHIS, S.Z., (Leninakan Armyanskoy SSR).

Clinical variants of hypertension following closed cerebrocranial  
trauma. Terap.arkh. 30 no.9:24-28 S'58 (MIRA 11:10)  
(BRAIN, wds. & inj.  
closed inj., post-traum. hypertension (Rus))  
(HYPERTENSION, etiol. & pathogen.  
brain closed inj. (Rus))

SHTERNBERG, A. A.

USSR/Physics Crystals

Dec 48

"The Actual Construction of Rochelle Salt Crystals," M. V. Klassen-Neklyudova,  
M. A. Chernysheva, A. A. Shternberg, Inst of Cryst, Acad Sci USSR, 3 1/3 pp

"Dok Ak Nauk SSSR" Vol LXIII, No 5

In research on mechanical properties of Rochelle salt crystals, definite anisotropy  
of elastic properties and complete absence of anisotropic stability were observed.  
Submitted by Acad A. F. Ioffe 7 Oct 48.

FA 55/49T86

SHTERNBERG, A.A.

~~Information concerning the meeting between G. Ponomaryov and A. A. Shternberg, the latter being the head of the KGB, was received on Sept. 16, 1965. To~~  
~~allow maximum latitude for the use of this information, it is being transmitted in~~  
~~the following form: (1) the original text of the information, (2) a summary of the~~  
~~information, and (3) a list of the names of the individuals mentioned in the~~  
~~information. The original text is being transmitted in order to provide the maximum~~  
~~amount of detail. The summary is being transmitted in order to provide a brief~~  
~~outline of the information. The list of names is being transmitted in order to~~  
~~allow the information to be easily identified.~~

SHTERNBERG, A. A.

3

*OKA* Growing crystals. P. G. Pudnitskoye and A. A. Shternberg. U.S.S.R. 101,179. Oct. 26, 1955. In producing unilaterally growing crystals and particularly crystals of ethylene diamine formate, laminae seeds are placed in the pockets of the crystal carrier in such manner that only the intersections of the rapidly growing facets are protruding from the pocket. Used as seed are laminae cut parallel or almost parallel to the plane bisecting the crystal longitudinally.

M. Hesch

JK  
MT

SHTERNBERG, A. A.

USSR/ Geology

Card 1/1 Pub. 22 - 33/47

Authors : Shternberg, A. A.

Title : Lower Jurassic deposits of Dagestan

Periodical : Dok. AN SSSR 100/6, 1155-1157, Feb 21, 1955

Abstract : Geological-lithological data are presented regarding the rhythmicity in the formation of Lower Jurassic strata in Dagestan. Illustration.

Institution : .....

Presented by: Academician D. V. Malivkin, November 2, 1954

TATARSKIY, V.B.; FRANK-KAMENETSKIY, V.A.; BURAKOVA, T.N.; NARDOV, V.V.;  
PETROV, T.G.; KONDRAT'YEVA, V.V.; KAMENTSEV, I.Ye.; CHERNYSHEVA,  
V.F.; ALEKSEYEVA, N.P.; ARTSYBASHEVA, T.F.; BARANOVSAYA, N.I.;  
BUNSEN, I.V.; VEREMETSKO, I.A.; GNEVUSHEV, M.A.; GOYKO, Ye.A.;  
KOMKOV, A.I.; KOTOVICH, V.A.; LITVINSKAYA, G.P.; MIKHEYEVA, I.V.;  
MOKIYEVSKIY, V.A.; PESTROVA, L.V.; POPOV, G.M.; SAFRONOVA, G.P.;  
SOBOLEVVA, V.V.; STULOV, N.N.; TUGARINOVA, V.G.; SHAFRANOVSKIY, I.I.;  
SHTERNBERG, A.A.; YANULOV, K.P.

O.M. Ansheles; obituary. Vest. IgU 12 no.18:152-154 '57. (MIRA 11:3)  
(Ansheles, Osip Markovich, 1885-1957)

Almaznyi nauk SSSR. Institut Kristallografi. Nota knizhnik. tom. 2 (Growth of Crystals), Vol. 2) Moscow, 1952. 256 p. Errata slip inserted. 2,000 copies printed.

Sup. Ns. 1. A. V. Shchukinov, Anderdian, and N. N. Sartull, Doctor of Geological and Mineralogical Sciences, Ed. of Publishing House: E. K. Almaznyi, Publ. Ed.: T. V. Polyakova.

Period: This book is intended for scientists and researchers engaged in crystallography and in growing industrial monocystals. Content: This is the second of two volumes on crystal growth. The first volume contained reports delivered at the First Congress on Crystal Growth. The present volume also contains an extensive study of corundum synthesis by E. E. Popov (Kievograd). These studies reflect the development of Soviet research in crystallography in the period following the first congress. The article contains some essentially new results obtained by Soviet scientists. The editor expresses the hope that the new studies will unite the efforts of Soviet scientists engaged in studying the process of crystal growth and in growing industrially valuable monocystals. No personalities are mentioned. References are given at the end of each article.

References: 1. L. D. Chantsov, and A. A. Gerasimov: The Green and Brown Part of Synthetic Quartz Crystals.

2. M. A. Krasniansky, N. N. Sartull: Crystallization of  $Si$  on a Monite and Muscovite.

Editor: M. V. Possibility of Determining Surface Energy of Crystals from Penetration Stages.

II. GROWTH OF MONOCRYSTALS (APPARATUS, METHODS, EXPERIMENTAL WORK)

Khodzhaev, Yu. Growing of Calcite and of Other Carbonates. 73

Khodzhaev, N. I., and N. S. Abramov: Growing of Arthite. 76

Khodzhaev, N. I., and A. A. Orlov: Orientation of Monocrystals of Certain Perovskites. 84

Khodzhaev, N. I., and A. V. Zalevskiy: Crystallization of Perovskites From Liquid and Gas Phases. 88

Khodzhaev, V. A. Studying the Process of Barium Nitrate Crystal Growth in a Plumb Solution With Barium Chloride. 95

Mil'kov, L. M., O. S. Melikova, and G. P. Dobrzhanskiy: Apparatus for Growing Organic Crystals From a Melt. 102

Popov, S. N. New Type of Monotube Compressor for the Production of Extremely High Gas Pressures. 105

Popov, A. A. Growing of a Bismuthophene Crystal and Its Morphological Symmetry. 109

Stepanov, L. A., and I. V. Stepanov: Synthesis of Barium Salts of Calcium Fluoride and Barium Fluoride for Growing Optical Monocrystals. 115

Khodzhaev, Yu. Effect of Cooling Conditions on the Creation of Malenitons on the Creation of Dislocations in Germanium Crystals. 120

N. S. I. S., and L. A. Vertolomova: Germanium-aluminum sulfide-monocrystals (Synthesis, Growing of Monocrystals, and some Properties of the Monocrystals). 126

Koborish, N. F. Crystallization of Germanium on Silicon and Silicon on Germanium. 132

Popov, S. N. Growing and Certain Uses of Corundum Crystals. 140

III. SURVEYS AND DISCUSSION ARTICLES

Koborish, N. F. Dislocation in Germanium Crystals (Survey). 211

Khodzhaev, N. N. Main Trends in the Study of Mixed Systems: Inorganic Crystals - Organic Additives (Survey). 223

AVAILABILITY: Library of Congress. 25

SHTEINBERG, A. A.

TSINOBER, L. I.; CHENTSOVA, L. G.; SHTERNBERG, A. A.

Green and brown coloration of synthetic quartz crystals. Rost  
krist. 2:61-67 '59. (MIRA 13:8)  
(Quartz crystals)

84,7000  
S/081/62/000/009/005/075  
B177/B138

84,7000

Shternberg, A. A.

AUTHOR:

TITLE:

PERIODICAL:

Growing single crystals from melts by controlled heat  
elimination

Referativnyy zhurnal. Khimiya, no. 9, 1962, 39-40,  
abstract 9E238 (Tr. Vses. n.-i. in-ta p'y. & optich. mineral'n.  
syr'ya, v. 3, no. 2, 1960, 89-93)

TEXT: The crystallization of a single-component system, proceeding at a  
constant temperature and accompanied by the evolution of heat to the  
ambient medium (heat of crystallization) and a change in volume, is  
examined. The conclusion is drawn that it is possible to control the  
growth of crystals from a melt by regulating the heat transfer from the  
system crystal-melt to the ambient medium at constant temperature and  
pressure, or by varying the pressure but eliminating the heat transfer  
to the ambient medium. Descriptions are given of apparatus for growing  
nica crystals in an H<sub>2</sub> atmosphere, and for growing crystals of Rochelle  
salt. Emphasis is laid on the need for taking into account the evolution  
Card 1/2.

SHTERNBERG, Aleksey Aleksandrovich; MAKSIMOVA, V.V., red.; KARPOVA,  
T.V., tekhn.red.

[Crystals in nature and technology; teacher's manual]  
Kristally v prirode i tekhnike; posobie dlia uchitelei.  
Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1961.  
85 p. (MIRA 15:2)  
(Crystallography)

S/081/62/000/016/003/043  
B168/B186

AUTHOR: Shternberg, A. A.

TITLE: An experiment in the growing of crystals by elimination of heat

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 16, 1962, 30, abstract  
16B179 (In collection: Rost kristallov. v. 3. M., AN SSSR,  
1961, 244-246. Diskus., 501-502)

TEXT: Further experiments were made on the growing of crystals with  
regulated elimination of heat from the fusion. It is stressed that since  
the temperature remains constant during crystallization of the fusion the  
process of crystal growth can thereby be controlled. The crucible tempera-  
ture is maintained at the required level by the crystallizing process it-  
self. If the heat of crystallization of a given salt and the total thermal  
conductivity of the heat insulation are known, it is possible to calculate  
the corresponding temperature difference between crucible and furnace to  
ensure that the crystal will grow at a specified velocity. Photographs are  
given of mica and saltpeter crystals (the latter weighing 3.3 kg) grown  
by the proposed method. It is noted that the method described is also

Card 1/2

S/081/62/000/016/003/043  
B168/B186

An experiment in the growing...

very effective in the growing of crystals of readily soluble salts whose solubility depends largely on temperature. [Abstracter's note: Complete translation.]



Card 2/2

S/564/61/003/000/006/029  
D258/D304

AUTHORS: Nepomnyashchaya, V. N., Shternberg, A. A., and  
Garvilova, I. V.

TITLE: A laboratory method for growing large, faceted crystals  
and oriented blocks of lithium sulphate

SOURCE: Akademiya nauk SSSR. Institut kristallografii. Rost  
kristallov, v. 3, 1961, 290-295

TEXT: The authors' aim was to produce crystals of  $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$  to be  
used in manufacturing piezoelectrical transformers, as indicated by P. G.  
Poldnyakov (Ref. 1: Kristallografiya, 1, 2, 228, 1956). Their work con-  
firms the difficulties encountered in producing crystals sufficiently  
large and homogeneous for that purpose; they found, however, that ori-  
ented blocks, grown in forms, are easier to obtain. The production of  
both crystals and blocks is described. (a) Crystals: A solution of  
 $\text{Li}_2\text{SO}_4$  (C.P. or P. A. grade;  $d = 1.213 - 1.214$  at room temperature) was

Card 1/3

S/564/61/003/000/006/029  
D258/D304

A laboratory method...

used, and 0.5 to 1.5 g/lit of  $H_2SO_4$  were added to yield pH 4-5. The crystal volume after  $n$  days,  $V_n$ , was found to be:  $V_n = kn \frac{b^2}{2} \left( \frac{nb}{10} + c \right)$ , where  $c$  is the initial length of the seed (in cm);  $b$ —the daily increase in width (in cm);  $k$  was 0.75 - 0.85. The weight of the individual crystal was  $G_n = V_n d$ , and the volume of condensate removed in  $n$  days

was  $Q_n = \frac{G_n \cdot 1000}{S}$ , where  $S$  is the solubility of  $Li_2SO_4$  (in g/lit) at the temperature of crystallization. Imperfect or parasitic crystals were trapped by the hole of the false bottom and did not interfere with the principal crystals. A fresh solution was continuously added at the rate at which condensate was removed. The growth proceeded at the rate of  $b = 3$  mm. Periods of 40 to 60 days were necessary to obtain crystals of up to 400 g. Many crystals were lost due to cracks formed during the process or while being removed from the support. Added  $H_2SO_4$  enhanced growth along the "z" axis (identical with the axis of the branch), while

Card 2/3

S/070/62/007/001/012/022  
E073/E335

AUTHOR: Shternberg, A.A.  
TITLE: On the relation between crack formation and the morphology of crystals with admixtures (heterometry)  
PERIODICAL: Kristallografiya, v.7, no.1, 1962, 114-120 + 2 plates  
TEXT: Nonuniform zone and sector penetration of admixtures into crystals and the resulting changes in the lattice parameters lead to a nonuniformity of the individual parts of the crystal. This nonuniformity, designated by V. A. Frank-Kamenetskiy as heterometry, produces in the crystals stresses which frequently result in crack formation. The crack formation caused by heterometry may be due to slight changes in composition and lattice parameter that are difficult to detect even by accurate methods of chemical and X-ray structural analysis. Heterometry is particularly pronounced in crystals which are grown slowly and have a perfect internal structure. Although microcrack formation due to heterometry does not occur frequently in artificially produced, easily soluble crystals, the phenomenon does arise in various forms during the growth of Seignette salt crystals. Some phenomena

Card 1/2

34,7100  
S/07C/62/007/002/022/022  
E132/E160

AUTHORS: Shternberg, A.A., Kuz'mina, I.P., and Kuznetsov, V.A.

TITLE: Apparatus for growing single crystals from the  
melt under pressure

PERIODICAL: Kristallografiya, v.7, no.2, 1962, 534-536

TEXT: It is difficult to grow crystals of ZnS from the  
melt because of the high vapour-pressure of the components.  
A closed furnace, with Mo wire heaters,  $ZrO_2$  and sand  
insulation, capable of working at above  $1800^\circ$  under a pressure  
of 200 atm  $N_2$ , is described. Crystals of ZnS up to 3 cm long  
were grown.

There are 3 figures.

ASSOCIATION: Institut kristallografi AN SSSR  
(Institute of Crystallography, AS USSR)

SUBMITTED: June 26, 1961

Card 1/1

SHTERNBERG, A.A.

State of water in supercritical regions as related to the problems  
of subsurface mineralization. Geol.rud.mestorozh. no.5:13-19  
S-0 '62. (MIRA 15:12)

1. Institut kristallografii AN SSSR, Moskva.  
(Water, Underground)

SHTERNBERG, A.A.; KUZNETSOV, V.A.

Crystallization of corundum from the gaseous phase using seed  
crystals. Kristallografiia 9 no.1:121-123 Ja-F '64.  
(MIRA 17:3)

1. Institut kristallografi AN SSSR.

SHTERNBERG, A.I.

Use of dry aminokrovin in chronic dysentery. Akt.vop.perel.krovi  
no.7:320-322 '59. (MIRA 13:1)

1. Sverdlovskaya stantsiya perelivaniya krovi.  
(BLOOD PLASMA SUBSTITUTES) (DYSENTERY)

SHTERNBERG, A.I.

Possibility of treating small children with a solution of dry amino-krovin by injection. Akt.vop.perel.krovi no.7:322-324 '59.

(MIRA 13:1)

1. Sverdlovskaya stantsiya perelivaniya krovi.  
(BLOOD PLASMA SUBSTITUTES)

SHTERNBERG, A.I.

Further improvement in the method for preparing dried aminokrovin  
in blood transfusion centers and results of its clinical use.  
Probl. gemat. i perel. krovi 5 no. 9:49-52 '60. (MIRA 14:1)  
(BLOOD PLASMA SUBSTITUTES)

SHERNBERG, A. L.

SHERNBERG, A. L. -- "Coronary Disease Based on Material from the Kislovodsk Spa." Published by "Sovetskiy Kuban'". Min Health RSFSR. Kuban' State imeni Red Army Medical Inst. Krasnodar, 1955. (Dissertation for the Degree of Candidate in Medical Sciences).

So.: Knizhnaya Letopis', No. 2, 1956.

SHTERNBERG, A.L., kand.med.nauk; SHABAN, I.V.

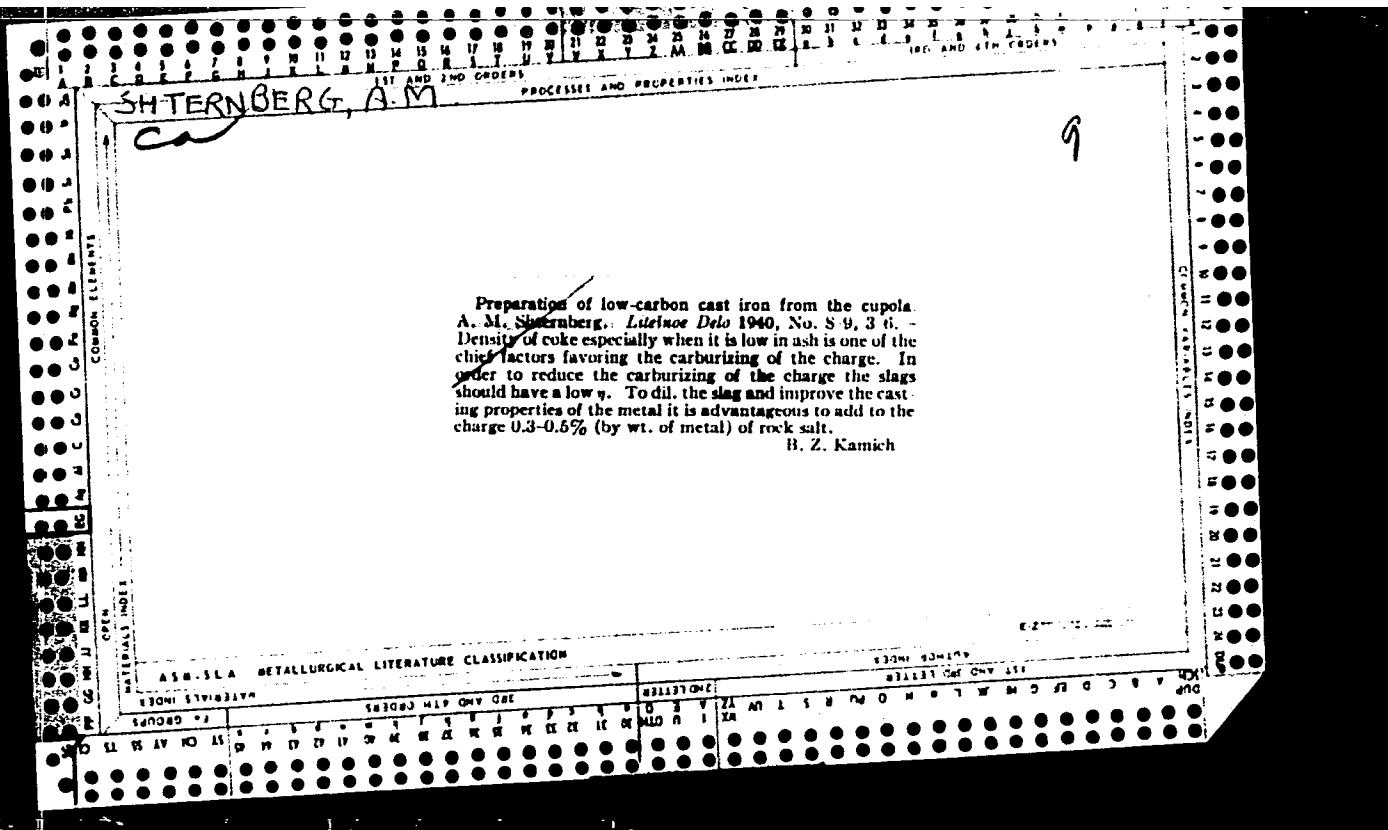
Diagnostic problems in aortic stenosis. Kardiologija 2 no.5:38-  
42 S-0 '62. (MIRA 15:12)

1. Iz klinicheskogo sanatoriya imeni V.I.Lenina i kafedry  
terapii i bol'reologii (zav. - prof. V.Ye.Nezlin) TSentral'-  
nogo instituta usovershenstvovaniya vrachey na Kavkazskikh  
Mineral'nykh Vodakh.  
(AORTIC VALVE--DISEASES) (HEART--SOUNDS)

CA  
SHTERNBERG, A.M.

Desulfurizing cast iron. L. I. Serebrier and A. M. Shternberg. Russ. 38,058, Sept. 30, 1894. Into the molten metal are introduced about 0.5% moist NaCl, 0.02% ferrosilicon containing 83% Si, and 0.05% ground wood charcoal.

9



LEITERSBERG, A. M.

Defended his Dissertation for Candidate of Technical Sciences in the Central Scientific Institute for Heavy Machine Construction, Moscow, 1953

Dissertation: "Method of Accelerated Annealing of White and Chilled Cast Irons in a Liquid Medium"

SO: Referativnyy Zhurnal Khimiya, No. 1, Oct. 1953 (W/29955, 26 Apr 54)

SFTERNBERG, A.M.

18  
Rapid annealing of white and chilled cast irons with improvement of their strength and special properties. A.M. Shternberg. *Kovil Chugun* (Moscow: Gosudarst. Nauch.-Tekhn. Izdatel. Mashinostroytel. Lit.) Skorost 1955, 340-57. *Referat. Zhur. Mf.* 1956, Abstr. No. 8020. — White and chilled iron castings were annealed for periods of 5-60 min. at 1030, 1050, 1070, and 1090°. A curve of degree of graphitization vs. temp. is given. Time of heating is a logarithmic function of temp. Liquid annealing media used were NaCl, Al, and bronze. Rates of graphitization decreased in the order Al, bronze, NaCl, gaseous medium. The first stage of graphitization on annealing in a liquid medium continues 1.5-2.0 hrs., and produces pearlitic ductile cast iron with tensile strength of 45-65 kg/sq. mm. and elongation of 4-8%. This method insures elimination of chilled iron from the surface of castings in 5-10 min., and increases their abrasion resistance and strength. Annealing of cast iron in a liquid medium is much faster than in a gaseous medium, and the total cost is little more than 1/3 as much. A. N. Pestoff

Distr: 4E2c/4F1

(3) 11/18

SOV/136-59-11-13/26

AUTHORS: Edel'man, A.S., Candidate of Technical Sciences, and  
Shternberg, A.V.

TITLE: Extrusion of Thin-Walled Aluminium Sheaths

PERIODICAL: Tsvetnyye metally, 1959, Nr 11, pp 61-64 (USSR)

ABSTRACT: Thin aluminium sheaths might find application in coaxial cables as external conductors and in symmetrical connecting cables as screens, replacing the copper tubes and strips used nowadays. Such a substitution would considerably facilitate the manufacture of cables and bring about great economy in copper. Their many years experience in covering cables with lead and their experience in the extrusion of half-finished aluminium articles led the authors to assume that the solution of the problem of manufacturing bi-metallic conductors of small diameter and thin-walled sheath is to be sought in the field of extrusion. This method has been used in the laboratory by Akulichev (Ref.3). He made bi-metallic conductors with aluminium sheaths of between 2 and 12 mm diameter and 0.40 to 1.0 mm wall thickness. However, Akulichev's method of extrusion and his plant require further development before they can be applied on an

Card 1/3

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SOV/136-59-11-13/26

## Extrusion of Thin-Walled Aluminium Sheaths

industrial scale. The authors have paid particular attention to the construction of the extrusion press and the relationship between mandrel and die; the extrusion process as used in the normal cable presses has been retained practically unaltered. Fig.1 shows such an instrument for the extrusion of thin-walled aluminium sheaths. In order to exclude the influence of the extrusion procedure and other factors on the formation process and quality of the sheaths, the instrument was checked during the extrusion of aluminium tubes by the inverse flow method in a device adapted to the "Amsler" machine. The results of measurements of extruded tubes of between 4 and 8 m length are shown in Table 1. The extruded tubes were tested to fracture by internal pressure. The magnitude of the latter measured at the moment of fracture of the tube, was converted to UTS in tension and this was found to be 8.0 to 8.5 kg/mm<sup>2</sup>. The percentage elongation was found to be 30 to 35%. The subsequent tests with the extrusion instrument were carried out in a special head (Fig.2) made for the extrusion of aluminium sheaths for conductors of various

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Extrusion of Thin-Walled Aluminium Sheaths

materials. Tubes were extruded and bare copper conductors, as well as cables insulated with fibre, were sheathed. The rate of metal flow in the extrusion of tubes was 25 to 30 m/min, and in sheathing 5 to 15 m/min at a pressure of 60 to 70 kg/mm<sup>2</sup>. The sheath dimensions obtained are shown in Table 2. The sheath wall thicknesses along the length of conductors are shown in Fig.3. There are 3 figures, 2 tables and 7 references, of which 6 are Soviet and 1 English. ✓

Card 3/3

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(MONILLIASIS, etiol. & pathogen.  
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(ANTIBIOTICS, inj. eff.  
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(PSYCHIATRY)  
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**Synthetic chemotherapeutic compounds. IV. Quinoline and acridine antimalarials.** I. L. Krichevskil, B. Ya. Shternberg, and E. P. Hal'perin. *J. Microbiol., Epidemiol., Immunobiol.* (U. S. S. R.) 14, 642-54 (in German 653-4) (1955); cf. *C. A.* 48, 6532<sup>a</sup>.—The chemotherapeutic index (ratio of min. curative to min. lethal dose, c/t) was determined for numerous quinoline and acridine derivatives. The c/t values for 6-methoxy-8- $\beta$ -(diethylamino)ethylaminoquinoline, and the Pr, Bu, Am, hexyl, heptyl, nonyl and undecyl analogs were found to be 6, 20.0, 10.0, 26, 13.3, 33.3, 40 and 0, resp. The neg. results in the last case were on *Acanthus linearis*, but with *Spinus spinus* a c/t value of 5 was obtained. The c/t values for 6-methoxy-8- $\beta$ -(diethylamino)- $\alpha$ -(methyl)ethylaminoquinoline, and Pr, Bu and Am analogs were 2, 25, 40 and 25, resp. The  $\omega$ -(diethylamino)- $\omega$ -(methyl)- $\omega$ -decyl analog had a c/t of 0, as did 2-methyl-6-methoxy-4- $\gamma$ -(diethylamino)propylaminoquinoline and 2-methyl-6-methoxy-4- $\gamma$ -(diethylamino)- $\beta$ -(hydroxy)propylaminoquinoline. The values for 2-methoxy-6-chloro-9- $\gamma$ -(diethylamino)- $\omega$ -propyl acridine-2 HCl, the 2-ethoxy and the 2-methyl analogs were 15, 7.5 and 6, resp. 2,3-Dimethoxy-6-chloro-9- $\gamma$ -(diethylamino)- $\omega$ -propylacridine-2 HCl had a c/t of 0. 2-Methoxy-7-nitro-9- $\gamma$ -(diethylamino)- $\omega$ -propyl acridine-2 HCl and the 7-chloro analog had values of 2.5 and 2, resp. For 2-methoxy-6-chloro-9- $\beta$ -(diethylamino)- $\omega$ -butylacridine-2 HCl, c/t was 20, and for the 2-ethoxy

analog, 7.5. For 2-methoxy-6-chloro-9- $\alpha$ -(diethylamino)- $\omega$ -amyl acridine-2 HCl, c/t was 0, for 2,3-dimethoxy-6-chloro- $\omega$ -(methyl)- $\beta$ -(diethylamino)- $\omega$ -butylacridine-2 HCl, 0, for 2-methoxy-6-chloro-9- $\alpha$ -(methyl)- $\gamma$ -(diethylamino)- $\omega$ -propyl acridine-2 HCl, 0, for 2-methoxy-7-chloro-9- $\alpha$ -(methyl)- $\beta$ -(dimethylamino)- $\omega$ -butyl acridine-2 HCl, 2, and for 2-methoxy-7-nitro-9- $\beta$ -(hydroxy)- $\omega$ -(diethylamino)- $\omega$ -propyl acridine-2 HCl, 1.0. The suitability of *Spinus spinus*, *Acanthus linearis* and *Senecio canarius* for the determination of c/t is in the order given.

S. A. Karala

The phenomenon of potentiation in chemotherapy. I.  
I. L. Kricheldorf and E. Ya. Shtrubberg. *Z. Mikrobiol. Epidemiol. Immunobiol.* (U. S. S. R.) 18, 100-222 (in German) 231-242 (1957). Trypan Blue (I) and Pyrolo Blue (II) have no curative action on *Plasmodium berghei* (III) in birds (*Spizella spinus*). However, when the birds are treated 7 days after infection with III with 1:10,000 plasmocidol (IV) which in these doses is inactive toward III, plus 1:600 of I or 1:200 of II, a strong therapeutic effect is observed. If the injections are made 3 days after infection with III, only 1:50,000 of IV is necessary. This activating effect of I and II is called "the phenomenon of potentiation." II also has a strong activating effect on quinoline-6-(4-aminomethyl-8-(3-dimethylamino)ethylamino)quinoline which alone has no effect on III. II has no effect on quinine or atebim (atrichinol).  
S. A. Korkina

ASME-SEA METALLURGICAL LITERATURE CLASSIFICATION

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(SPEECH, DISORDERS, etiology and pathogenesis,  
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1. Institut psichiatrii (dir. - prof. D.D. Fedotov) AMN SSSR, Moskva.  
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